International Journal of Advanced Research in Medicine

E-ISSN: 2706-9575
P-ISSN: 2706-9567
www.medicinepaper.net/
IJARM 2019; 1(1): 04-06
Received: 05-11-2019
Accepted: 07-12-2019

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To assess clinical features in patients with CKD: A clinical study

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DOI: https://doi.org/10.22271/27069567.2019.v1.i1a.2

Abstract
Background: Chronic kidney disease (CKD) encompasses a spectrum of different pathophysiological processes associated with abnormal kidney function and a progressive decline in glomerular filtration rate. The present study was conducted to assess clinical features in patients with CKD.
Materials and Methods: The present study was conducted on 64 CKD patients of both genders. Detailed history and clinical examination of the patients was done. Clinical features were recorded. USG was done in all patients.
Results: Out of 64 patients, males were 40 and females were 24. Common features were nausea in 49, vomiting in 32, anorexia in 30, bodyache in 46, Dyspnea in 25, diarrhea in 12, hiccups in 35, itching in 38 and unconsciousness in 7. The difference was significant ($p< 0.05$). The mean blood urea level was 246.5 mg/dl, serum creatinine was 16.8 mg/dl, hemoglobin was 7.2 g/dl, sodium level was 147.7 mmol/l, potassium level was 5.2 mmol/l, uric acid was 9.6 mg/dl. The difference was significant ($p< 0.05$).
Conclusion: Raised sodium level raised potassium level, reduced hemoglobin level in patients with CKD. Common finding was nausea, vomiting, anorexia, bodyache, dyspnea, diarrhea, hiccups and itching.

Keywords: chronic kidney disease, sodium, potassium

Introduction
Chronic kidney disease (CKD) encompasses a spectrum of different pathophysiological processes associated with abnormal kidney function and a progressive decline in glomerular filtration rate.[1] Chronic Kidney Disease is a major public health problem and major cause of morbidity and mortality world wide. Prevalence of CKD worldwide is estimated to be 8-16% and in India prevalence is 17.2%. CKD is diagnosed on the basis of presence of markers of kidney damage and kidney function [2].
CKD has various clinical presentations depending in part on the extent of reduction of kidney mass and quickness of loss of kidney function. CKD is generally unrecognized in the early stages, as there are no particular symptoms. The problem may be exposed by discovery of anemia, hypertension, or by routine laboratory examination of blood and urine during early stages.[3] Patients of CKD may present with indistinguishable symptoms like pallor, fatigue, gastrointestinal disorders like hiccups, nausea and vomiting or with symptoms of heart failure such as dyspnea, orthopnea and edema. General practitioners easily fail to spot these patients and the delay in diagnosis will affect the patient's treatment and prognosis. If CKD is diagnosed late, such patients have restricted treatment choices like dialysis or transplantation. Complications of CKD consist of increased all cause and cardiovascular mortality, End stage renal disease (ESRD), acute renal injury, cognitive deterioration, anemia, 4 mineral and bone disorders, and fractures [4] The present study was conducted to assess clinical features in patients with CKD.

Materials and Methods
The present study was conducted in department of Internal Medicine. It comprised of 64 CKD patients of both genders. The patient was explained in their vernacular language about the procedures to be adopted in the study and their informed written consent was taken. The study was conducted after approval from institutional thesis and ethical committee. Documented cases of CKD irrespective of the etiology of CKD were included while patients of CKD on dialysis and proven case of anemia prior to the detection of CKD were excluded. General information such as name, age, gender etc. was recorded. Detailed history and

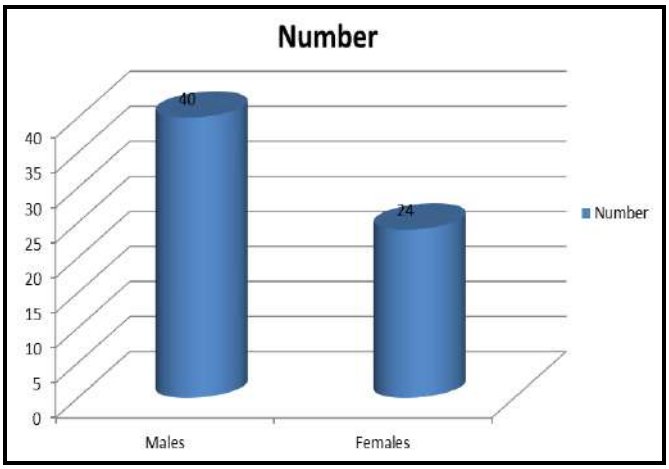
clinical examination of the patients was done. Clinical features were recorded. USG was done in all patients. The data collected was analyzed statistically. P value less than 0.05 was considered significant.

Results

Table I: Distribution of patients

Genders	Males	Females
Number	40	24

Table I, graph I shows that out of 64 patients, males were 40 and females were 24.

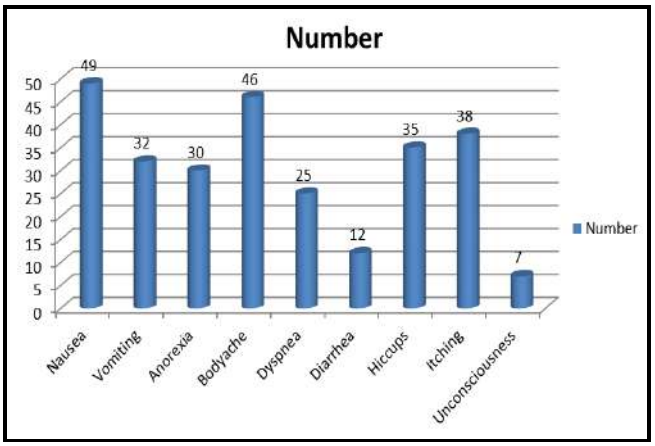


Graph I: Distribution of patients

Table II: Clinical features in patients

Clinical features	Number	P value
Nausea	49	0.02
Vomiting	32	
Anorexia	30	
Bodyache	46	
Dyspnea	25	
Diarrhea	12	
Hiccups	35	
Itching	38	
Unconsciousness	7	

Table II, graph II shows that common features were nausea in 49, vomiting in 32, anorexia in 30, bodyache in 46, Dyspnea in 25, diarrhea in 12, hiccups in 35, itching in 38 and unconsciousness in 7. The difference was significant ($p< 0.05$).

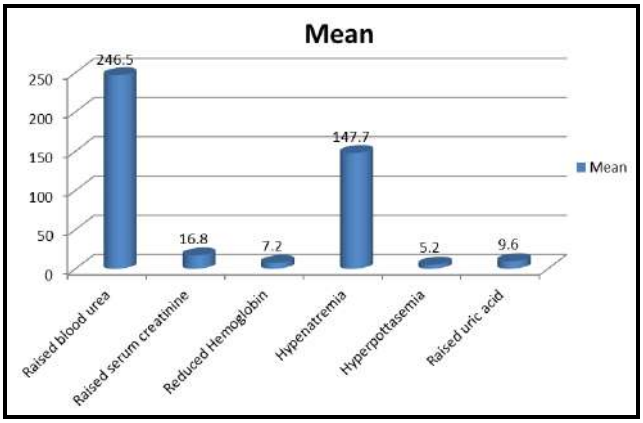


Graph II: Clinical features in patients

Table III: Laboratory findings in patients

Findings	Mean	P value
Raised blood urea	246.5	0.02
Raised serum creatinine	16.8	
Reduced Hemoglobin	7.2	
Hypenatremia	147.7	
Hyperpottasemia	5.2	
Raised uric acid	9.6	

Table III, graph III shows that mean blood urea level was 246.5 mg/dl, serum creatinine was 16.8 mg/dl, hemoglobin was 7.2 g/dl, sodium level was 147.7 mmol/l, potassium level was 5.2 mmol/l, uric acid was 9.6 mg/dl. The difference was significant ($p< 0.05$).



Graph III: Laboratory findings in patients

Discussion

CKD metabolic complications, which include anemia, metabolic acidosis, and mineral and electrolyte disorders, may be asymptomatic for a long time. According to Kidney Disease Outcomes Quality Initiative (K/DOQI) guidelines, all patients at stage 3 CKD or above (*i.e.*, those with a GFR _60 ml/min per 1.73 m2), should be evaluated for all complications [5]. This threshold, however, was defined from clinical and population-based studies, all of which used equation-estimated GFR (eGFR), a method sensitive to both the choice of equation and serum creatinine (Scr) calibration, particularly for the highest GFR values [6]. Population-based studies, with one exception, have also lacked the power to search for complication-specific GFR thresholds below 60 ml/min per 1.73 m2. Moreover, although a few studies showed the influence of some patient characteristics, such as ethnic origin and diabetes, on the prevalence of various complications, neither their potential impact nor the effect of clinical factors on metabolic disorders has been investigated systematically [7]. The present study was conducted to assess clinical features in patients with CKD.

In this study, out of 64 patients, males were 40 and females were 24. Common features were nausea in 49, vomiting in 32, anorexia in 30, bodyache in 46, Dyspnea in 25, diarrhea in 12, hiccups in 35, itching in 38 and unconsciousness in 7. Aggarwal *et al.* [8] found that out of 50 patients, 62% (n = 31) were men, a mean age of 46.22 years (± 12.89 SD), a mean creatinine clearance of 5 mmol/24 hours (±2.16 SD), a mean albumin: creatinine ratio of 49 mg/g (±11.33 SD) and a mean serum creatinine of 16.5 mg/dl (±6.65 SD). Chronic glomerulonephritis (30%), hypertension (24%) and diabetic nephropathy (20%) were the leading causes of CKD.

Anemia (94%) was universal finding on laboratory work up. Gastrointestinal manifestations stand out among the clinical presentations with anorexia (76%), nausea (60%) vomiting (40%) and abdominal pain (26%).

We found that mean blood urea level was 246.5 mg/dl, serum creatinine was 16.8 mg/dl, hemoglobin was 7.2 g/dl, sodium level was 147.7 mmol/l, potassium level was 5.2 mmol/l, uric acid was 9.6 mg/dl. Levin *et al*. [9] found that as mGFR decreased from 60 to 90 to 20 ml/min per 1.73 m2, the prevalence of hyperparathyroidism increased from 17 to 85%, anemia from 8 to 41%, hyperphosphatemia from 1 to 30%, metabolic acidosis from 2 to 39%, and hyperkalemia from 2 to 42%. Factors most strongly associated with metabolic complications, independent of mGFR, were younger age for acidosis and hyperphosphatemia, presence of diabetes for acidosis, diabetic kidney disease for anemia, and both male gender and the use of inhibitors of the renin-angiotensin system for hyperkalemia. mGFR thresholds for detecting complications with 90% sensitivity were 50, 44, 40, 39, and 37 ml/min per 1.73 m2 for hyperparathyroidism, anemia, acidosis, hyperkalemia, and hyperphosphatemia, respectively. Analysis using estimated GFR produced similar results.

Renal replacement therapy is the only treatment option for these patients which is costly and not frequently available. Often, CKD is difficult to recognize in early stages because of its subtle and broad range of presentations resulting in late referrals and restricted treatment options. Timely intervention may arrest or delays the disease progression and need for renal replacement therapy [10].

Conclusion

Authors found raised sodium level raised potassium level, reduced hemoglobin level in patients with CKD. Common finding was nausea, vomiting, anorexia, bodyache, dyspnea, diarrhea, hiccups and itching.

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